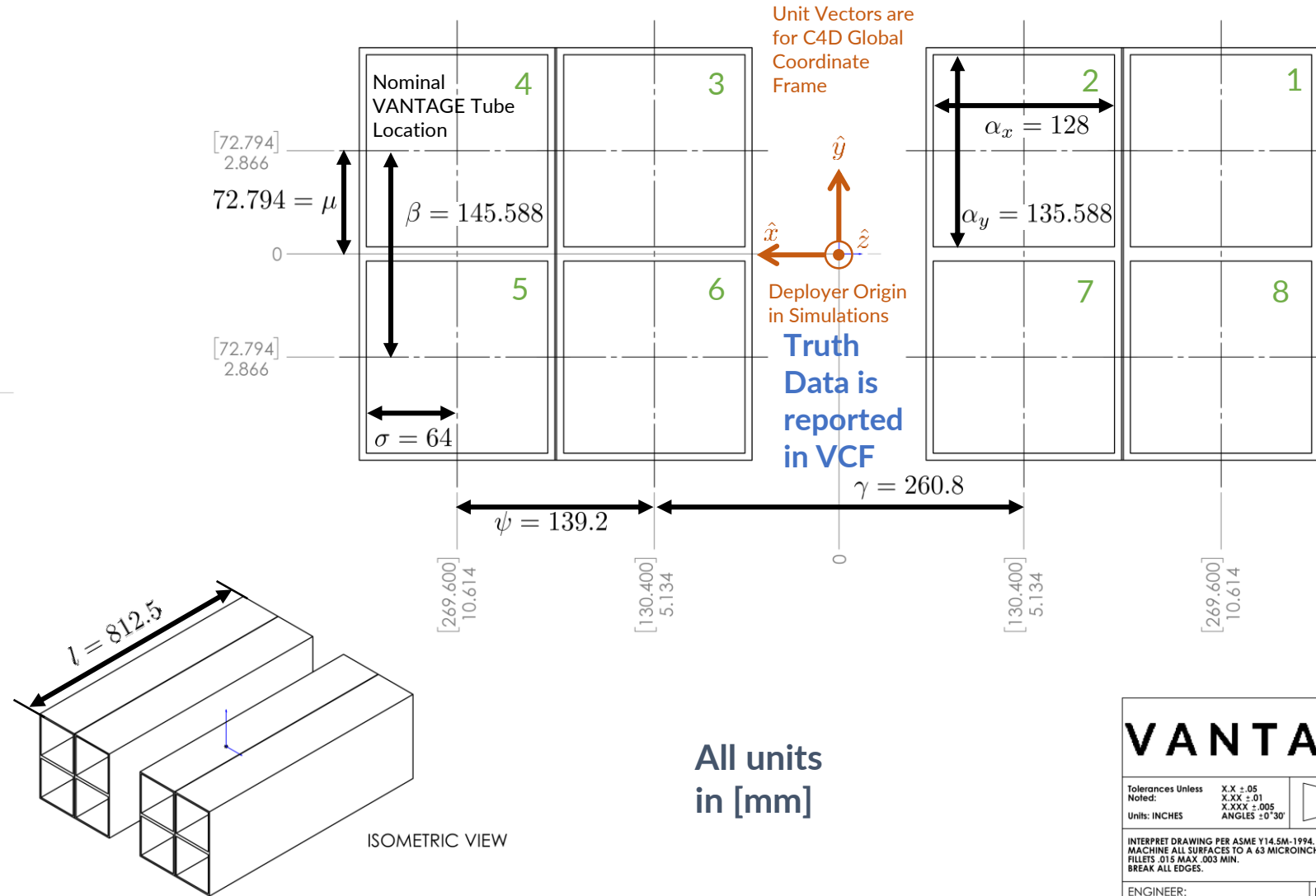



NOTES:
This part is for virtual simulations only

Deployer Geometry Setup

This page is used for understanding how VANTAGE's and CubeSats' locations are automatically setup in the C4D script.



All units
in [mm]

| | | | |
|--|--|--|--|
| VANTAGE | |  UNIVERSITY OF COLORADO 1111 ENGINEERING DRIVE BOULDER, CO 80309-0427 | |
| Tolerances Unless Noted: Units: INCHES | | X.X ± .05 X.XX ± .01 X.XXX ± .005 ANGLES ± 0° 30' | |
| INTERPRET DRAWING PER ASME Y14.5M-1994. MACHINE ALL SURFACES TO A 43 MICROINCH FINISH OR BETTER. FILLET .015 MAX .003 MIN. BREAK ALL EDGES. | | DESCRIPTION NanoRacks Deployer Simulation Assembly | |
| ENGINEER: Aboaf | | DRAWN BY: Aboaf | |
| APPROVED: Aboaf | | PART NUMBER ---- | |
| REVISION A | | SCALE 1:3 | |
| SHEET 1 OF 1 | | | |

NOTES:

VANTAGE / Optical Frame Definition

$$12.51 = \phi 12.51$$


$$-18.25 = \xi$$

$$-37.25 = \nabla$$

$$-40.25 = \rho$$

Deployer Origin
in Simulations

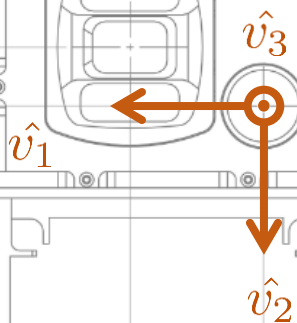
All units
in [mm]

| | | | |
|--|--|--|-----------------|
| VANTAGE | |  UNIVERSITY OF COLORADO 1111 ENGINEERING DRIVE BOULDER, CO 80309-0427 | |
| Tolerances Unless Noted: Units: INCHES | | DESCRIPTION VANTAGE Sensor Boresight Locations | |
| X.X ± .05 X.XX ± .01 X.XXX ± .005 ANGLES ± 0° 30' | | MATERIAL: --- | |
| INTERPRET DRAWING PER ASME Y14.5M-1994. MACHINE ALL SURFACES TO A 43 MICROINCH FINISH OR BETTER. FILLETS .015 MAX .003 MIN. BREAK ALL EDGES. | | PART NUMBER --- | SHEET 1 OF 1 |
| ENGINEER: ABOAF | | DRAWN BY: ABOAF | APPROVED: ABOAF |
| PROPRIETARY AND CONFIDENTIAL: The information contained in this drawing is the sole property of the University of Colorado. Any reproduction in part or as a whole without written consent is prohibited. | | | |

VANTAGE / Optical Frame Definition (VCF / CCF)

NOTES:

[54.510]
2.146
[31.748]
1.250





The frame origin is located at the aperture point of the camera-lens system.

This will be determined by calibration of the camera-lens system.

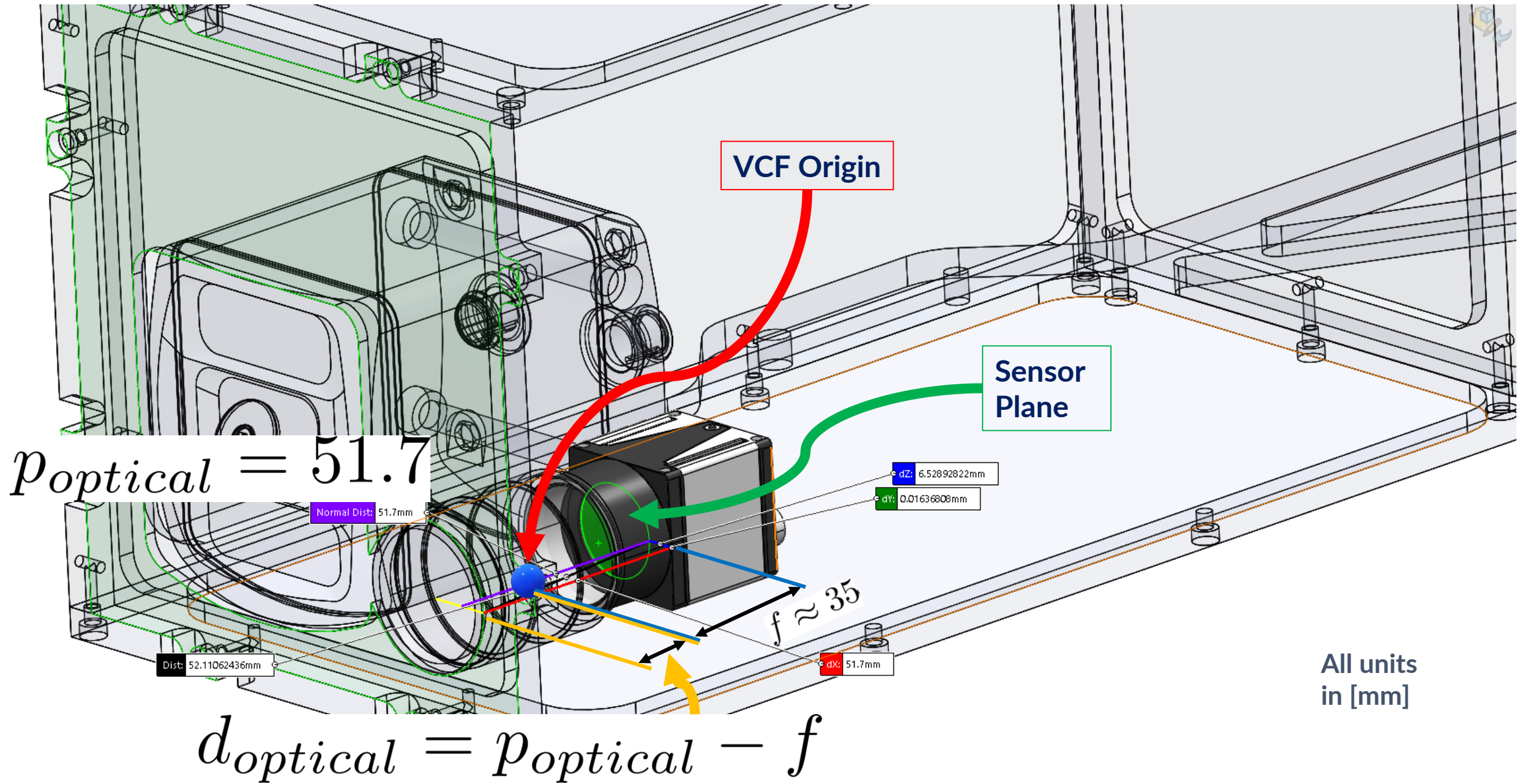
Rough focal length, f , is 35 [mm]

THIS IS THE FRAME TRUTH DATA WILL BE REPORTED IN

All units in [mm]

| | | | | | |
|---|--|---|--|--|-----------------|
| VANTAGE | |  | | UNIVERSITY OF COLORADO | |
| | | | | 1111 ENGINEERING DRIVE BOULDER, CO 80309-0427 | |
| Tolerances Unless Noted: | |  | | DESCRIPTION VANTAGE Sensor Boresight Locations | |
| Units: INCHES | | | | MATERIAL: — | |
| INTERPRET DRAWING PER ASME Y14.5M-1994. MACHINE ALL SURFACES TO A 63 MICROINCH FINISH OR BETTER. FILLET .015 MAX .003 MIN. BREAK ALL EDGES. | | | | PART NUMBER — | REV — |
| | | | | SCALE 1:2 | SHEET 1 OF 1 |
| ENGINEER: ABOAF | | DRAWN BY: ABOAF | | APPROVED: ABOAF | |
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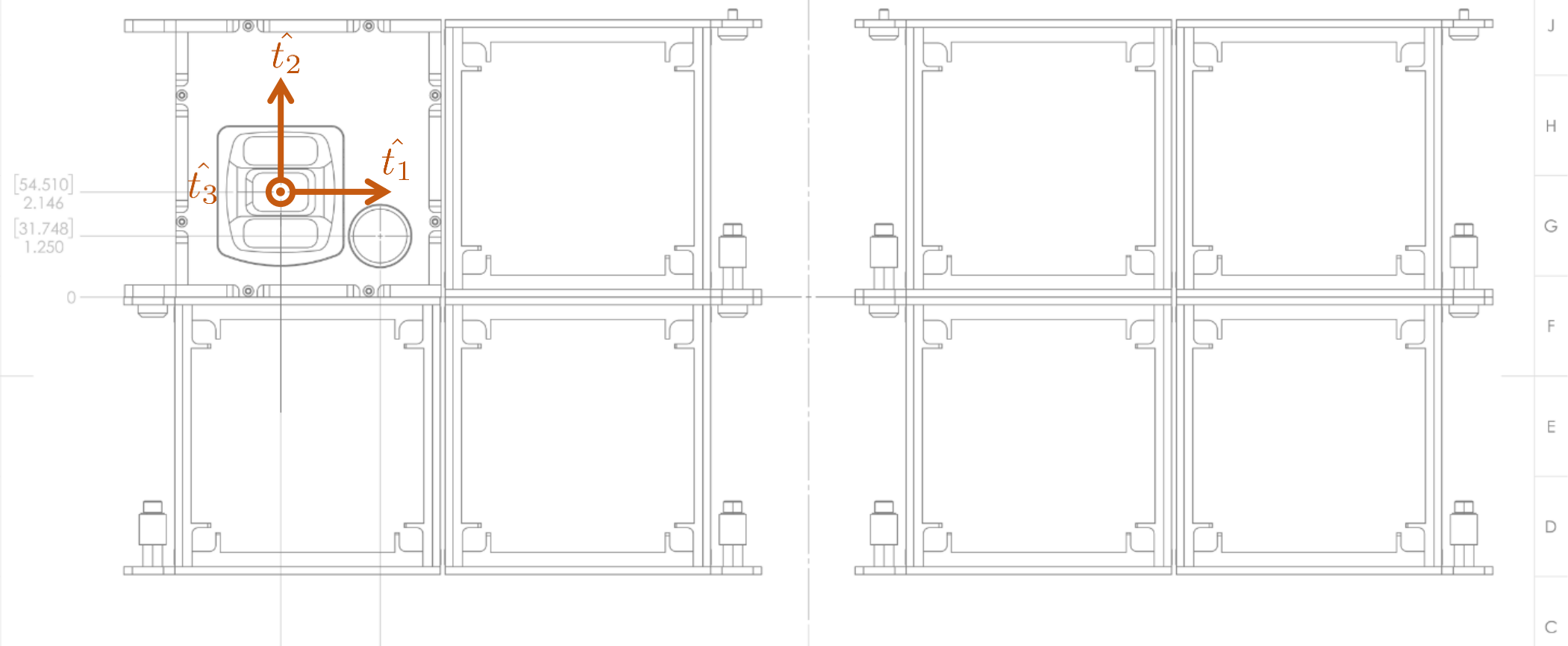
Location of Optical Sensor Plane and VCF Origin Relative to VANTAGE Front Plate




The frame origin is located on the glass of the ToF lens.

ToF Frame Definition (TCF)

NOTES:



All units in [mm]

| | | | |
|---|--------------------|--|-------------------|
| VANTAGE | |  UNIVERSITY OF COLORADO 1111 ENGINEERING DRIVE BOULDER, CO 80309-0427 | |
| Tolerances Unless Noted: Units: INCHES | | X.X ± .05 X.XX ± .01 X.XXX ± .005 ANGLES ± 0° 30' | |
| INTERPRET DRAWING PER ASME Y14.5M-1994. MACHINE ALL SURFACES TO A 63 MICROINCH FINISH OR BETTER. FILLETS .015 MAX .003 MIN. BREAK ALL EDGES. | | DESCRIPTION VANTAGE Sensor Boresight Locations MATERIAL: --- | |
| ENGINEER: ABOAF | DRAWN BY: ABOAF | APPROVED: ABOAF | PART NUMBER -- |
| PROPRIETARY AND CONFIDENTIAL: The information contained in this drawing is the sole property of the University of Colorado. Any reproduction in part or as a whole without written consent is prohibited. | | SCALE 1:2 | SHEET 1 OF 1 |

Location of TCF Origin Relative to VANTAGE Front Plate

TCF Origin

$$d_{tof} = 4.8$$

Normal Dist: 4.8mm

Dist: 19.12030502mm

Area: 11269.2871805mm²
Perimeter: 1075.19650833mm

dZ: 18.508mm

dx: 4.8mm

Point2

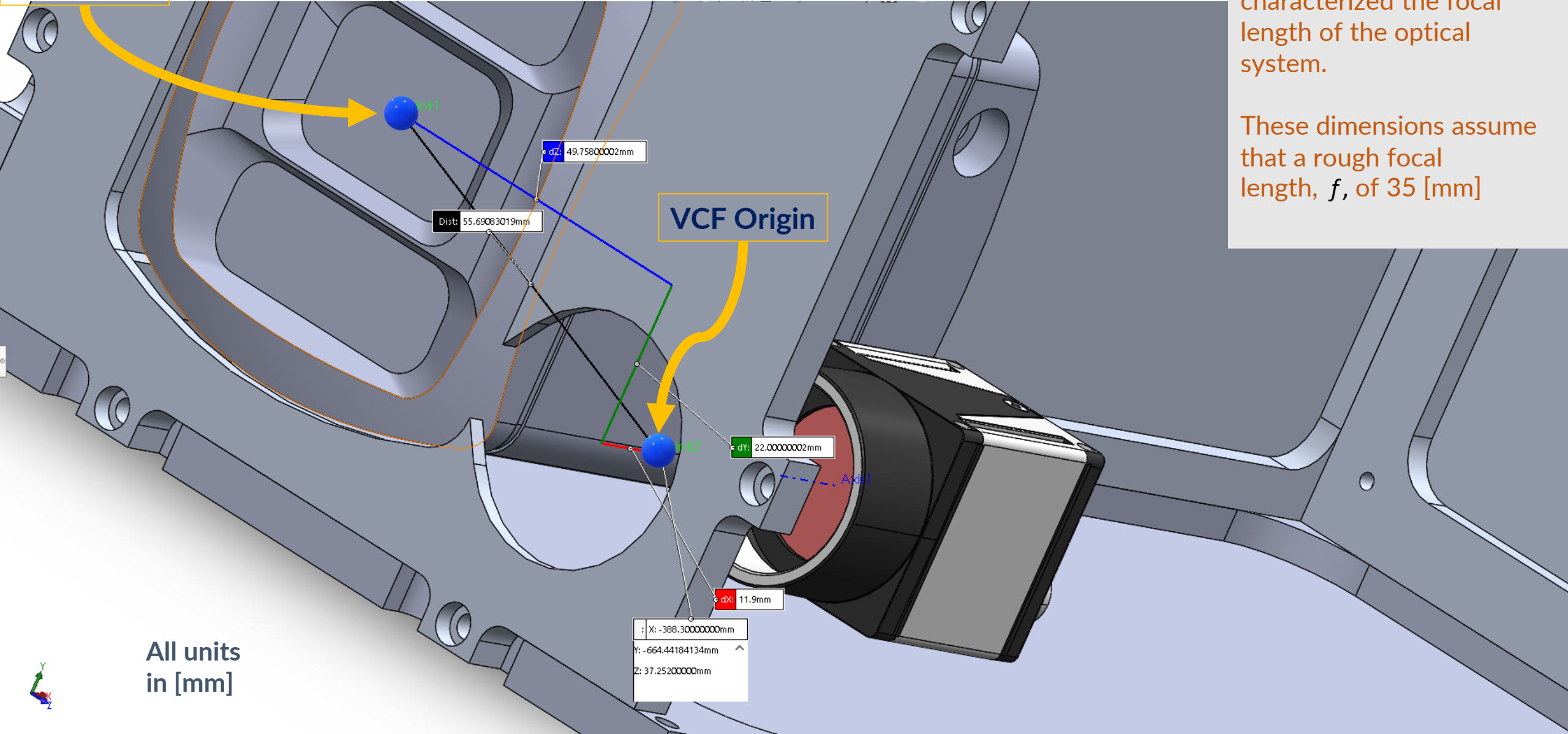
Axis1

All units
in [mm]



TCF to VCF Distance

TCF Origin



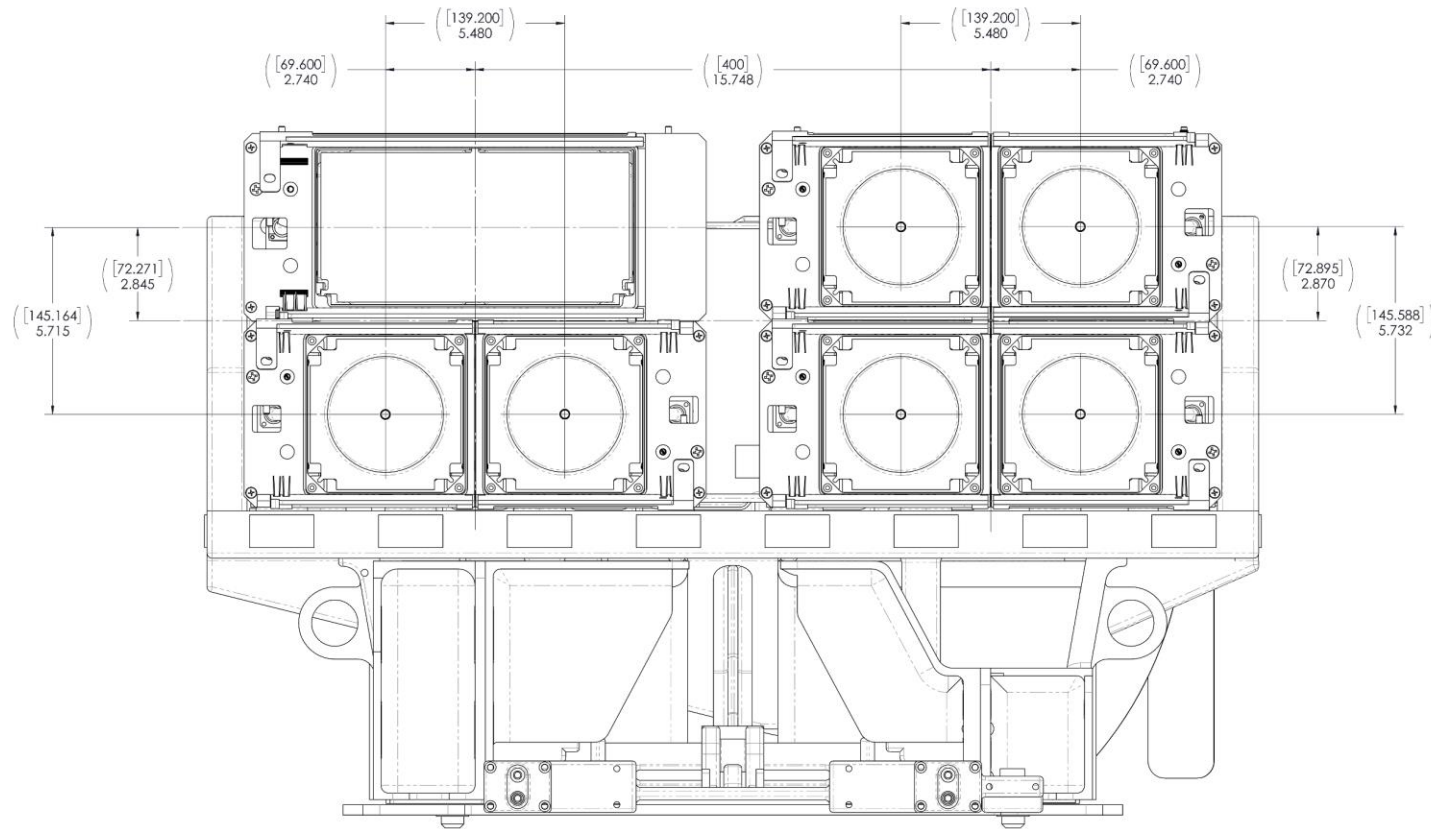
The exact dimensions of this definition are rough in the x direction, as we currently haven't exactly characterized the focal length of the optical system.

These dimensions assume that a rough focal length, f , of 35 [mm]

All units in [mm]



Actual NR Deployer Geometry



5. BAG AND TAG PART NUMBER PER NASA/JSC PRC-9002.
4. CLEAN TO LEVEL VC PER NASA/JSC PRC-5001.
3. THESE PARTS ARE NOT FRACTURE CRITICAL.
2. INTERPRET DIMENSIONING AND TOLERANCING PER ANSI-Y14.5M-2009.
1. DIMENSIONS ARE IN INCHES.

NOTES: UNLESS OTHERWISE SPECIFIED

| | | | |
|---|--|--------------------------------|--|
| DIMENSIONS ARE IN INCHES TOLERANCES UNLESS NOTED OTHERWISE .0 ± 0.10 .00 ± 0.03 | | .000 ± 0.010 ANGULAR ± 0.5° | |
| SURFACE FINISH UNLESS OTHERWISE SPECIFIED | | IS ✓ | |
| THIRD ANGLE PROJECTION | | MODEL VERSION | |
| FRACTURE CRITICAL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | MODEL REVISION | |
| <input checked="" type="checkbox"/> FLT HOWE <input type="checkbox"/> MOCKUP | | CODE ID No 63HC7 | |
| <input type="checkbox"/> APPLICABLE GSE | | AUTH | |

| | |
|--------------------|--|
| SIGNATURES & DATES | |
| DR | |
| ENG | |
| CH | |
| APP | |
| QC | |
| MATL | |
| STRESS | |
| AUTH | |

| | |
|-------------------------------|--------------|
| NANORACKS, LLC HOUSTON, TEXAS | |
| SILO REFERENCE DIMENSIONS | |
| SIZE DRG No. D | REV - |
| SCALE: 1:2 | SHEET 1 OF 1 |

PRELIMINARY
add mon yy